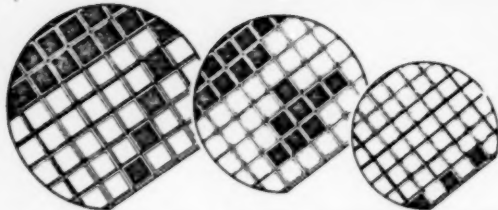


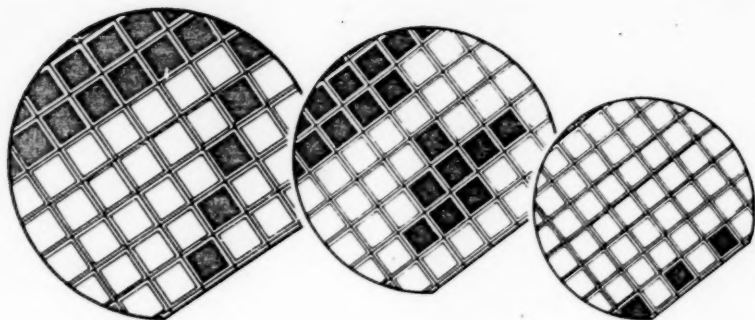
SOLID STATE TECHNOLOGY CUMULATIVE INDEX 1982

Articles and Authors	Issue	Page	Articles and Authors	Issue	Page
A Comparison of Silver Halide Systems as Applied to Today's Advanced Semiconductor Requirements Paul H. Johnson, David L. Angel	Jan	75	Laser Processing of Semiconductor Silicon Thomas J. Magee, T. Keith McNab	July Part II Dec	74 101
A Comprehensive Test Sequence for the Electron Beam Exposure System Terrence E. Zavecz	Feb	106	Linewidth Measurements on IC Masks by Diffraction from Grating Test Patterns W. A. Bosenberg, H. P. Kleinknecht	Oct	110
Activation and Process Characteristics of Infrared Rapid Isothermal and Furnace Annealing Techniques D. F. Downey, C. J. Russo, J. T. White	Sept	87	Lithography for VLSI: An Overview Jay K. Hassan, Homi G. Sarkary	May	49
Advances in Contamination Control of Processing Chemicals in VLSI E. M. Juleff, W. J. McLeod, E. A. Hulse, S. Fawcett	Sept	82	Low Frequency Planar Plasma Etching of Polycrystalline Structures in an SF ₆ Glow Discharge M. E. Coe, S. H. Rogers	Aug	79
Advanced in VLSI Plasma Etching D. K. Lam	Apr	215	LPCVD of Aluminum Al-Si Alloys for Semiconductor Metallization M. J. Cooke, R. A. Heinecke, R. C. Stern, J. W. Maes	Dec	62
A Method of Computer-Aided Test Generation John W. Clark, Mark Neighbors	Nov	112	Mask Consideration in the Plasma Etching of Aluminum Clarence J. Tracy, Robert Mattox	June	83
Analysis of N ₂ Plasma to Characterize Plasma Etching Systems W. R. Harshbarger	Apr	126	Mask Limitations to VLSI: Overlay Accuracy and Linewidth Variation Monroe J. Cowan	May	55
Application and Use of Acceleration Factors in Microelectronics Testing Dan Epstein	Nov	116	Measurement and Sources of Substrate Heat Flux Encountered with Magnetron Sputtering Walter Class, Robert Hieronymi	Dec	55
Applications of High-Speed Data Acquisition for Semiconductor Device Yield Analysis John M. Charles, Mikkel W. Lantz	Mar Part II Apr	119 247	Minimizing Pattern Registration Errors through Wafer Stepper Matching Techniques Chris K. Van Peski	May	111
Applications of Molecular Beam Epitaxy to III-V Microwave and High Speed Device Fabrication J. C. M. Hwang, J. V. DiLorenzo, P. E. Lucher, W. S. Knodle	Oct	166	Mix-and-Match of 10:1 Wafer Steppers with Die-by-Die Alignment to 1:1 Proximity and Projection Systems H. L. Stover, N. E. David, T. H. Lewis	Oct	124
Applications of Profile Simulation for Thin Film Deposition and Etching Processes C. H. Ting, A. R. Neureuther	Feb	115	More Reliable Connections to Condensation-Soldered Terminals E. A. Gultier, R. A. Chavers, P. J. Ouellette	Oct	98
Arsenic Diffusion in Silicon from Spin-On Doped Glass by Laser Melting S. Wo	June	71	Multi-Chamber Dry Etching System Hideaki Itakura, Hiroyoshi Komiya, Katsumi Ukai	Apr	209
A Simple Metal Lift-Off Process (For 1 Micron Al/S% Cu Lines) Tom Batchelder	Feb	111	Optical Test Structures for Process Control Monitors Using Wafer Stepper Metrology N. E. David, H. L. Stover	June	131
Automation of the Assembly Process David E. Page, Don M. Jackson	June	89	Positive Resist Material Requirements for VLSI Device Fabrication David J. Elliott	May Part II Dec	116 91
A VLSI-ATE Selection Matrix Jim Healy	Nov	81	Positive Wafer Temperature Control to Increase Dry Etch Throughput and Yield E. J. Egerton, A. Nef, W. Millikin, W. Cook, D. Baril	Aug	84
Chemistry and Stability of Ruthenium-Based Resistors J. W. Pierce, D. W. Kuty, J. R. Larry	Oct	85	Process Monitoring and Evaluation R. C. Fink, W. C. Giles	Nov	107
Chlorine Oxidation and Annealing in the Fabrication of High-Performance LSI Devices T. Hattori	July	83	Reactive Ion Etching of Al-Si-Cu Alloy Films Andrew A. Chambers	Aug	93
Comparison of Pump Speed Control Techniques for Pressure Control in Plasma/LPCVD Systems W. R. Clark, J. C. Sullivan	Mar	105	RIE of Submicron MoSi ₃ /poly-Si Gates for CMOS/SOS Devices E. C. Whitcomb, A. B. Jones	Apr	121
Comparison of RF Sputtered Titanium-Tungsten/Gold with DC Magnetron Sputtered Tungsten/Gold on Silicon Ronald S. Nowicki	July	127	Regeneration Process for High-Vacuum Cryopumps J. Ehmann	Apr	235
Controlled Anisotropic Etching of Polysilicon Steven F. Bergeron, Bernard F. Duncan	Aug	98	Resolution and Linewidth Tolerances in Electron Beam and Optical Projection Lithography T. S. Chang, D. F. Kyser, C. H. Ting	May	60
CVD Tungsten Interconnect and Contact Barrier Technology for VLSI Nicholas E. Miller, Israel Beinglass	Dec	85	RFI Prevention in RF Plasma Systems H. D. Alcaide	Apr	171
Deep UV Exposure Technology Jerry Bachur	Feb	124	Role of Testing in VLS/VHS Integrated Circuit Development N. F. Stahlberg	Nov	89
Deposition and Properties of RF Reactively Sputtered SiO ₂ Layers J. Kortlandt, L. Oosting	Oct	153	SEM-Analysis of the Electrically Active Subsurface P-N Junctions in MOS Configuration R. Kaitna, J. Wernish	Mar	98
Detection of Microcontaminants in Semiconductor Process Fluids Using an Acoustic Technology Don L. Tolliver, Nigel Davenport, Leight R. Abts	Sept	116	III-V Semiconductor Integrated Circuits—A Perspective Robert P. Mandal	Jan	94
Diffusion and Reactions in Gold Films John M. Poate	Apr	227	Silicon Process Balancing Act for VLSI Richard B. Fair	Apr	220
Effect of Ion Implanter Design upon Implant Uniformity Andrew B. Wittkower	Sept	77	Single Wafer Plasma Etching R. F. Reichelderfer	Apr	160
Electron Beam Lithography for the 80s B. P. Pivczyk, A. E. Williams	June	74	2. SiO ₂ Etching Mechanisms and Characteristics Corey Mullins	Aug	68
Electron Lithography H. N. G. King	Feb	102	Submicron CMOS/SOS Process for VLSI R. Maddox, F. Kinoshita, N. Casey, R. Imerson, C. Sallee, E. C. Whitcomb	Apr	240
Endpoint Detection in a Batch Loaded Planar Etcher C. S. Korman	Apr	115	Surface Science Analysis Techniques John A. Buono, Alan W. Wisniewski, W. Scott Andrus	Feb	95
Etching Needs for VLSI L. M. Ephraim	July	87	Thermal Wave Microscopy Allan Rosencwaig	Mar	91
Evaluation of Interposed Gold Wire Leads for TC Bonded External Hybrid Connections H. N. Keller, C. E. Appar	Jan	86	The Use of Scanning Electron Microscopy to Solve Thick Film Manufacturing Problems Ira B. Goldman	May	108
High Rate Reactive Ion Etching Using a Magnetron Discharge Haruo Okano, Takashi Yamazaki, Yasuhiro Horike	Apr	166	The SSTC Integrated Circuit Facility W. A. Bosenberg	Mar	122
High Reliability Polymer Thick Film F. Wayne Martin	Oct	173	Thick Film Composition Reproducibility and its Impact on Yields Keith M. Wilson, Judith L. Resutsek	Mar	115
Ideal Projection Lithography Using a Multilayer Resist Process E. David Liu, Michael M. O'Toole, Mark S. Chang	May	66	Trends in Semiconductor Material Technologies H. Ming Liaw	July	65
Industry-Compatible Applications for Visible Laser Energy in Semiconductor Production Thomas R. Richardson, Jerry Boogaard	Mar	102	Vacuum Problems in Today's Integrated Circuit Manufacturing Systems Pierre Duval	Aug Part II Sept	110 124
Integrated Circuit Packaging Trends Erel R. Winkler	June	94	Vacuum Pump Technology: A Short Course on Theory and Operations— John F. Peterson, Hans A. Steinhilber	Part II Jan	104
Ion Projection Microolithography G. Stengl, R. Kaitna, H. Loschner, R. Rieder, P. Weir, R. Sacher	Aug	104	Wafer Flatness Utilizing the Pin-Recess Chuck T. E. Saunders	May	73



SOLID STATE TECHNOLOGY CUMULATIVE INDEX 1982

Articles and Authors	Issue	Page	Articles and Authors	Issue	Page
A Comparison of Silver Halide Systems as Applied to Today's Advanced Semiconductor Requirements Paul H. Johnson, David L. Angel	Jan	75	Laser Processing of Semiconductor Silicon Thomas J. Magee, T. Keith McNab	July Part II Dec	74 101
A Comprehensive Test Sequence for the Electron Beam Exposure System Terrence E. Zavecz	Feb	106	Linewidth Measurements on IC Masks by Diffraction from Grating Test Patterns W. A. Bosenberg, H. P. Kleinknecht	Oct	110
Activation and Process Characteristics of Infrared Rapid Isothermal and Furnace Annealing Techniques D. F. Downey, C. J. Russo, J. T. White	Sept	87	Lithography for VLSI: An Overview Jay K. Hassan, Homi G. Sarkary	May	49
Advances in Contamination Control of Processing Chemicals in VLSI E. M. Juleff, W. J. McLeod, E. A. Hulse, S. Fawcett	Sept	82	Low Frequency Planar Plasma Etching of Polycrystalline Structures in an SF ₆ Glow Discharge M. E. Coe, S. H. Rogers	Aug	79
Advanced in VLSI Plasma Etching D. K. Lam	Apr	215	LPCVD of Aluminum Al-Si Alloys for Semiconductor Metallization M. J. Cooke, R. A. Heinecke, R. C. Stern, J. W. Maes	Dec	62
A Method of Computer-Aided Test Generation John W. Clark, Mark Neighbors	Nov	112	Mask Consideration in the Plasma Etching of Aluminum Clarence J. Tracy, Robert Mattox	June	83
Analysis of N ₂ Plasma to Characterize Plasma Etching Systems W. R. Harshbarger	Apr	126	Mask Limitations to VLSI: Overlay Accuracy and Linewidth Variation Monroe J. Cowan	May	55
Application and Use of Acceleration Factors in Microelectronics Testing Dan Epstein	Nov	116	Measurement and Sources of Substrate Heat Flux Encountered with Magnetron Sputtering Walter Class, Robert Hieronymi	Dec	55
Applications of High-Speed Data Acquisition for Semiconductor Device Yield Analysis John M. Charles, Mikkel W. Lantz	Mar Part II Apr	119 247	Minimizing Pattern Registration Errors through Wafer Stepper Matching Techniques Chris K. Van Peski	May	111
Applications of Molecular Beam Epitaxy to III-V Microwave and High Speed Device Fabrication J. C. M. Hwang, J. V. DiLorenzo, P. E. Lucher, W. S. Knodle	Oct	166	Mix-and-Match of 10:1 Wafer Steppers with Die-by-Die Alignment to 1:1 Proximity and Projection Systems H. L. Stover, N. E. David, T. H. Lewis	Oct	124
Applications of Profile Simulation for Thin Film Deposition and Etching Processes C. H. Ting, A. R. Neureuther	Feb	115	More Reliable Connections to Condensation-Soldered Terminals E. A. Gultier, R. A. Chavers, P. J. Ouellette	Oct	98
Arsenic Diffusion in Silicon from Spin-On Doped Glass by Laser Melting S. Wo	June	71	Multi-Chamber Dry Etching System Hideaki Itakura, Hiroyoshi Komiya, Katsumi Ukai	Apr	209
A Simple Metal Lift-Off Process (For 1 Micron Al/S% Cu Lines) Tom Batchelder	Feb	111	Optical Test Structures for Process Control Monitors Using Wafer Stepper Metrology N. E. David, H. L. Stover	June	131
Automation of the Assembly Process David E. Page, Don M. Jackson	June	89	Positive Resist Material Requirements for VLSI Device Fabrication David J. Elliott	May Part II Dec	116 91
A VLSI-ATE Selection Matrix Jim Healy	Nov	81	Positive Wafer Temperature Control to Increase Dry Etch Throughput and Yield E. J. Egerton, A. Nef, W. Millikin, W. Cook, D. Baril	Aug	84
Chemistry and Stability of Ruthenium-Based Resistors J. W. Pierce, D. W. Kuty, J. R. Larry	Oct	85	Process Monitoring and Evaluation R. C. Fink, W. C. Giles	Nov	107
Chlorine Oxidation and Annealing in the Fabrication of High-Performance LSI Devices T. Hattori	July	83	Reactive Ion Etching of Al-Si-Cu Alloy Films Andrew A. Chambers	Aug	93
Comparison of Pump Speed Control Techniques for Pressure Control in Plasma/LPCVD Systems W. R. Clark, J. C. Sullivan	Mar	105	RIE of Submicron MoSi ₃ /poly-Si Gates for CMOS/SOS Devices E. C. Whitcomb, A. B. Jones	Apr	121
Comparison of RF Sputtered Titanium-Tungsten/Gold with DC Magnetron Sputtered Tungsten/Gold on Silicon Ronald S. Nowicki	July	127	Regeneration Process for High-Vacuum Cryopumps J. Ehmann	Apr	235
Controlled Anisotropic Etching of Polysilicon Steven F. Bergeron, Bernard F. Duncan	Aug	98	Resolution and Linewidth Tolerances in Electron Beam and Optical Projection Lithography T. S. Chang, D. F. Kyser, C. H. Ting	May	60
CVD Tungsten Interconnect and Contact Barrier Technology for VLSI Nicholas E. Miller, Israel Beinglass	Dec	85	RFI Prevention in RF Plasma Systems H. D. Alcaide	Apr	171
Deep UV Exposure Technology Jerry Bachur	Feb	124	Role of Testing in VLS/VHS Integrated Circuit Development N. F. Stahlberg	Nov	89
Deposition and Properties of RF Reactively Sputtered SiO ₂ Layers J. Kortlandt, L. Oosting	Oct	153	SEM-Analysis of the Electrically Active Subsurface P-N Junctions in MOS Configuration R. Kaitna, J. Wernish	Mar	98
Detection of Microcontaminants in Semiconductor Process Fluids Using an Acoustic Technology Don L. Tolliver, Nigel Davenport, Leight R. Abts	Sept	116	III-V Semiconductor Integrated Circuits—A Perspective Robert P. Mandal	Jan	94
Diffusion and Reactions in Gold Films John M. Poate	Apr	227	Silicon Process Balancing Act for VLSI Richard B. Fair	Apr	220
Effect of Ion Implanter Design upon Implant Uniformity Andrew B. Wittkower	Sept	77	Single Wafer Plasma Etching R. F. Reichelderfer	Apr	160
Electron Beam Lithography for the 80s B. P. Pivczyk, A. E. Williams	June	74	2. SiO ₂ Etching Mechanisms and Characteristics Corey Mullins	Aug	68
Electron Lithography H. N. G. King	Feb	102	Submicron CMOS/SOS Process for VLSI R. Maddox, F. Kinoshita, N. Casey, R. Imerson, C. Sallee, E. C. Whitcomb	Apr	240
Endpoint Detection in a Batch Loaded Planar Etcher C. S. Korman	Apr	115	Surface Science Analysis Techniques John A. Buono, Alan W. Wisniewski, W. Scott Andrus	Feb	95
Etching Needs for VLSI L. M. Ephraïm	July	87	Thermal Wave Microscopy Allan Rosencwaig	Mar	91
Evaluation of Interposed Gold Wire Leads for TC Bonded External Hybrid Connections H. N. Keller, C. E. Appar	Jan	86	The Use of Scanning Electron Microscopy to Solve Thick Film Manufacturing Problems Ira B. Goldman	May	108
High Rate Reactive Ion Etching Using a Magnetron Discharge Haruo Okano, Takashi Yamazaki, Yasuhiro Horike	Apr	166	The SSTC Integrated Circuit Facility W. A. Bosenberg	Mar	122
High Reliability Polymer Thick Film F. Wayne Martin	Oct	173	Thick Film Composition Reproducibility and its Impact on Yields Keith M. Wilson, Judith L. Resutsek	Mar	115
Ideal Projection Lithography Using a Multilayer Resist Process E. David Liu, Michael M. O'Toole, Mark S. Chang	May	66	Trends in Semiconductor Material Technologies H. Ming Liaw	July	65
Industry-Compatible Applications for Visible Laser Energy in Semiconductor Production Thomas R. Richardson, Jerry Boogaard	Mar	102	Vacuum Problems in Today's Integrated Circuit Manufacturing Systems Pierre Duval	Aug Part II Sept	110 124
Integrated Circuit Packaging Trends Erel R. Winkler	June	94	Vacuum Pump Technology: A Short Course on Theory and Operations— John F. Peterson, Hans A. Steinhilber	Part II Jan	104
Ion Projection Microolithography G. Stengl, R. Kaitna, H. Loschner, R. Rieder, P. Weir, R. Sacher	Aug	104	Wafer Flatness Utilizing the Pin-Recess Chuck T. E. Saunders	May	73



AUTHORS 1982

Authors	Issue	Page	Authors	Issue	Page
Abts, Leigh R.	Sept	116	Kuty, D. W.	Oct	85
Alcalde, H. D.	Apr	171	Kyser, D. E.	May	60
Andrus, W. Scott	Feb	95	Lam, David K.	Apr	215
Angel, David L.	Jan	75	Lantz, Mikkel, W.	Mar	119
Apgar, C. E.	Jan	86		Apr	247
Bachur, Jerry	Feb	124	Larry, J. R.	Oct	85
Baril, D.	Aug	84	Lewis, T. H.	Oct	124
Batchelder, Tum	Feb	111	Llaw, Ming H.	July	65
Beinglass, Israel	Dec	85	Liu, E. David	May	66
Bergeron, Steven F.	Aug	98	Loschner, H.	Aug	104
Boogaard, Jerry	Mar	102	Luscher, P. E.	Oct	166
Bosenberg, W. A.	Mar	122	Maddox, R.	Apr	240
	Oct	110	Maes, J. W. C.	Dec	62
Buckley, Jere D.	May	77	Magee, Thomas J.	July	74
Buono, John A.	Feb	95		Dec	101
Casey, N.	Apr	240	Mandal, Robert P.	Jan	94
Chambers, Andrew A.	Aug	93	Martin, F. Wayne	Oct	173
Chang, Mark S.	May	66	Mattox, R.	June	83
Chang, T. S.	May	60	McLeod, W. J.	Sept	82
Charles, John M.	Mar	119	McNab, T. Keith	July	74
	Apr	247		Dec	101
Chavers, R. A.	Oct	98	Miller, Nicholas E.	Dec	85
Clark, John W.	Nov	112	Millikin, W.	Aug	84
Clark, W. R.	Mar	105	Mullins, Corey	Aug	88
Class, Walter	Dec	55	Nel, A.	Aug	84
Coe, M. E.	Aug	79	Neighbors, Mark	Nov	112
Cook, W.	Aug	84	Neureuther, A. R.	Feb	115
Cooke, M. J.	Dec	62	Nowicki, R. S.	June	127
Cowan, Monroe J.	May	55	Okano, Haruo	Apr	166
Davenport, Nigel	Sept	116	Oosting, L.	Oct	153
David, N. E.	June	131	O'Toole, Michael M.	May	66
	Oct	124	Ouellette, P. J.	Oct	98
DiLorenzo, J. V.	Oct	166	Page, D. E.	June	89
Downey, D. F.	Sept	87	Peterson, John F.	Jan	104
Duncan, Bernard F.	Aug	98	Pierce, J. W.	Oct	85
Duval, Pierre	Aug	110	Piwczyk, B. P.	June	74
	Sept	124	Poate, John M.	Apr	227
Egerton, E. J.	Aug	84	Reichelderfer, R. F.	Apr	160
Ehman, John	Apr	235	Resutek, Judith L.	Mar	115
Elliott, David J.	May	116	Richardson, Thomas R.	Mar	102
	Dec	91	Rieder, R.	Aug	104
Eprath, L. M.	July	87	Rogers, S. H.	Aug	79
Epstein, Dan	Nov	116	Rosencwaig, Allan	Mar	91
Fair, Richard B.	Apr	220	Russo, C. J.	Sept	87
Fawcett, S.	Sept	82	Sacher, R.	Aug	104
Fink, R. C.	Nov	107	Sallee, C.	Apr	240
Giles, W. C.	Nov	107	Sarkary, Homi G.	May	49
Goldman, Ira B.	Mar	108	Saunders, T. E.	May	73
Gutbier, E. A.	Oct	98	Stahlberg, N. F.	Nov	89
Harshbarger, William R.	Apr	126	Steinherz, Hans A.	Jan	104
Hassan, Jay K.	May	49	Stengle, G.	Aug	104
Hattori, Takeshi	July	83	Stern, R. C.	Dec	62
Healy, Jim	Nov	81	Stover, H. L.	June	131
Heinecke, R. A.	Dec	62		Oct	124
Hieronymi, Robert	Dec	55	Sullivan, J. J.	Mar	105
Horike, Yasuhiro	Apr	166	Ting, C. H.	Feb	115
Hulse, E. A.	Sept	82	Tolliver, Don L.	Sept	116
Hwang, J. C. M.	Oct	166	Tracy, C. J.	June	83
Imerson, R.	Apr	240	Ukai, Katsumi	Apr	209
Itakura, Hideaki	Apr	209	Van Peski, Chris K.	May	111
Jackson, D. M.	June	89	Wernish, J.	Mar	98
Johnson, Paul H.	Jan	75	Whitcomb, Eugene C.	Apr	121
Jones, A. B.	Apr	121	White, J. T.	Sept	87
Julieff, E. M.	Sept	82	Williams, A. E.	June	74
Kaitana, R.	Mar	98	Wilson, Keith M.	Mar	115
Keller, H. N.	Jan	86	Winkler, E. R.	June	127
King, N. N. G.	Feb	102	Wisniewski, Alan W.	Feb	95
Kinoshita, E.	Apr	240	Wittkower, Andrew B.	Sept	77
Kleinknecht, H. P.	Oct	110	Wolf, P.	Aug	104
Knodle, W. S.	Oct	166	Wu, S.	June	71
Komiya, Hiroyoshi	Apr	209	Yamazaki, Takashi	Apr	166
Korman, C. S.	Apr	115	Zavec, Terrence E.	Feb	106
Korlandt, J.	Oct	153			